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Conocybe hausknechtii, a new species of sect. *Pilosellae* from the Western Caucasus, Russia

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Abstract — A new species, *Conocybe hausknechtii*, from the Western Caucasus, Russia is proposed here with detailed descriptions and illustrations.

Key words — *Bolbitiaceae*, taxonomy

Introduction

Members of the genus *Conocybe* Fayod are characterized by mycenoid habit, usually orange or brownish basidiocarp color, adnexed lamellae, lecythiform cheilocystidia, a hymeniderm pileipellis, and variously shaped spores usually with a prominent germ-pore (Arnolds 2005; Hausknecht 2009).

In an earlier study (Malysheva 2011) twenty-five species belonging to *Conocybe* were reported for the Western Caucasus. Detailed macroscopic and microscopic examination of two collections from this territory found some remarkable differences from known species; these collections are proposed as a new species.

Materials & methods

Material collected by the author from the Teberda State Biosphere Reserve (Western Caucasus, Russia) in August, 2009, was documented and dried using standard techniques. Macroscopic characters were recorded from fresh material in the field. Microscopic structures were determined from dried material observed under a light microscope Micmed 2-2 in squash preparations of small parts of the basidiocarp in 5% KOH. Size ranges for microstructures, except for basidiospores, are given based on measurement of at least 10 structures from each collection. In the descriptions of basidiospores, Q = mean length/width ratio of an individual spore and Q* = average Q from the total of 20 spores per collection. For observation of spore surface in Scanning Electron Microscopy (SEM), the spore material was prepared following Pegler & Young (1972). The images were captured using a "JEOL" JSM-6390LA Analytical Scanning Electron Microscope.

The specimens examined are deposited in the Mycological Herbarium of the Komarov Botanical Institute (LE). The nrITS sequences were submitted to GenBank.

Plate 1. *Conocybe hausknechtii*: mature basidiocarps.

Taxonomy

Conocybe hausknechtii E.F. Malysheva, **sp. nov.** Pl. 1–3

MycoBank MB 564193

Differs from *Conocybe rostellata* by its much wider pileus, stouter stipe, and slightly shorter spores.

Type: Russia, Karachaevo-Cherkesia, Teberda State Biosphere Reserve, vicinity of Teberda town, broad-leaved forest with *Fagus*, on strongly decayed wood of deciduous tree (probably *Fagus*), 6.VIII.2009, E. Malysheva (**Holotype**, LE 253789; GenBank JQ247194).

Etymology: Named after Dr. Anton Hausknecht in honor of his exceptional contribution to knowledge of the *Bolbitiaceae*.

Pileus 25–40 mm, at first obtusely conical with broad umbo, then conico-convex to applanate, hygrophanous, translucently striate to center when moist, in fresh condition pale to dark reddish brown, sometimes with ochraceous tint, slightly paler towards margin, in dry condition dull brown, clay-color to ochre, with center remaining darker, surface smooth or almost invisibly pruinose, especially at center; Lamellae moderately crowded, narrowly adnate, ventricose, pale yellow-brown to rusty brown, with concolorous edge and lamellulae; Stipe 40–50 × 3–4 mm, cylindrical or slightly thickened towards base, without distinct bulb, pale cream-yellowish or ochraceous at apex to yellow-brown or red-brown in lower part, longitudinally striate and entirely pubescent.

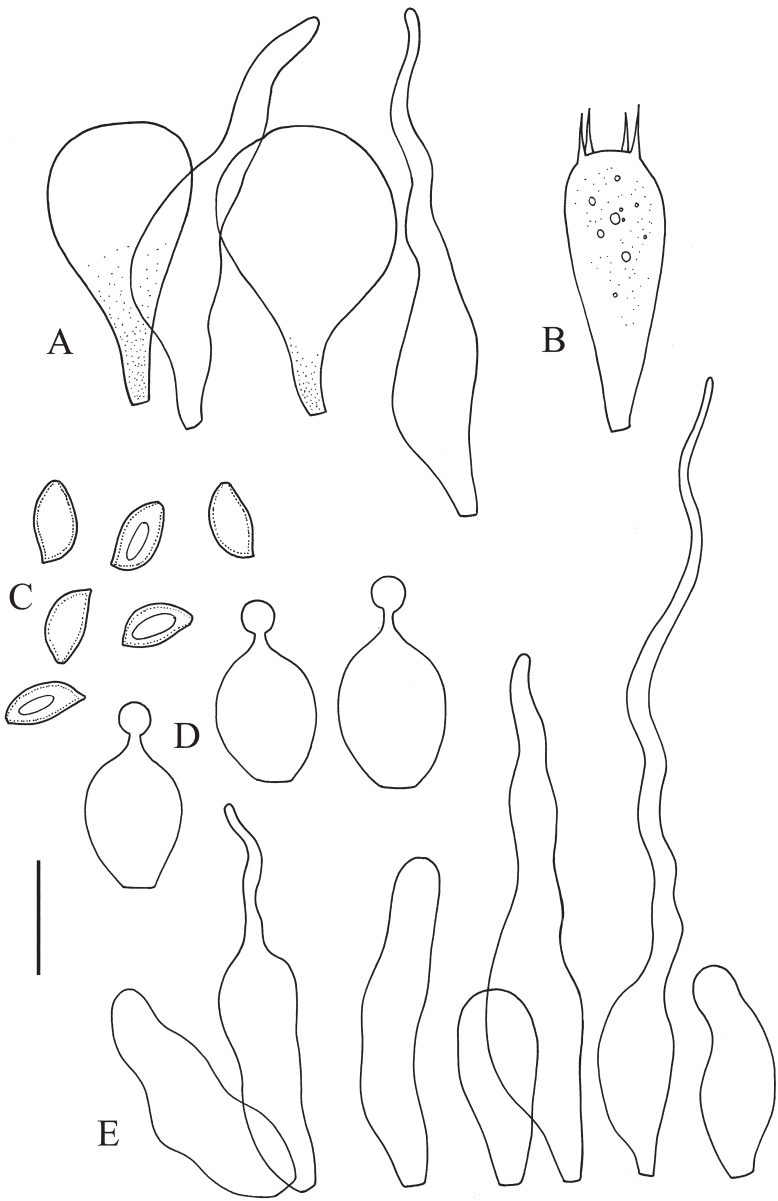

Plate 2. *Conocybe hausknechtii* (holotype): A – elements of pileipellis with pileocystidia; B – basidium; C – spores; D – cheilocystidia; E – caulocystidia. Scale bar = 10 μm.

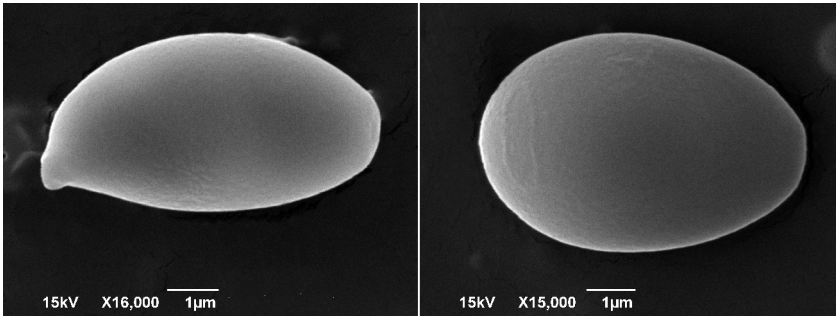

Plate 3. *Conocybe hausknechtii*: SEM photographs of spores.

Basidiospores 7.6–8.0 × 4.6–5.4 μm, Q = 1.6–1.7, Q* = 1.6, narrowly ellipsoid, some proportion limoniform to amygdaliform, not lentiform, sometimes papillate, with distinct germ-pore, pale yellow-brown in KOH, slightly thick-walled, smooth (even in scanning electron microscope); Basidia 4-spored, 27–30 × 8–12.5 μm, broadly clavate; Cheilocystidia lecythiform, 18–30 × 8–12 μm, with short neck and small head, 4–5.5 μm in diameter; Pileipellis a hymeniderm, consisting of clavate or spheropedunculate elements, 25–40 × 15–35 μm, often pigmented and thick-walled at base; Pileocystidia numerous, mostly lageniform with long flexuous neck, 37–55 × 5.5–8 μm, more rarely lecythiform with long neck and small head, 27–40 × 7–11 μm, thin-walled, hyaline or with yellow-brown content; Caulocystidia numerous, forming a continuous layer, variable in shape and size, mostly represented by long hyaline hairs ≤100 μm in length and <4 μm wide as well as lageniform, cylindrical, utriform or clavate elements, 12–60 × 8–14 μm; Clamp connections present.

Ecology & distribution — On strongly decayed wood of deciduous tree or on soil in forest. Only known from two places in the Western Caucasus.

Additional specimen examined — **Russia**, **Karachaevo-Cherkesia**, Teberda State Biosphere Reserve, vicinity of Teberda town, mixed forest (with *Fagus*, *Carpinus*, *Pinus*), on soil, 7.VIII.2009, T. Svetasheva (LE 253998; GenBank JQ247195).

Discussion

Conocybe hausknechtii is characterized by the relatively dark basidiocarp color, strongly striate pileus, small limoniform or amygdaliform spores, presence of lageniform and lecythiform pileocystidia, and a stipitipellis lacking lecythiform caulocystidia. Based on this combination of characters, *C. hausknechtii* belongs to sect. *Pilosellae* Singer, series *Siennophylla* Hauskn. & Krisai [as "*Sienophylla*"] (Hausknecht, Krisai-Greilhuber 2006). Microscopically it is rather close to some species of the *C. siennophylla* group: *C. siennophylla*

(Berk. & Broome) Singer, *C. rostellata* (Velen.) Hauskn. & Svrček., and *C. ochrostriata* var. *favrei* Hauskn.

Conocybe siennophylla differs from *C. hausknechtii* mainly in brighter basidiocarp color, larger ellipsoid-ovoid (never limoniform) spores, and usually inconspicuous pileocystidia.

Conocybe rostellata is the species closest to *C. hausknechtii*, having similar shaped but slightly longer spores. It also differs from the new species by more slender habit and smaller basidiocarp size with a 5–27 mm broad pileus and stipe measuring 25–70 × 0.5–2 mm (Hausknecht 2009, Arnolds 2005).

Conocybe ochrostriata var. *favrei* differs from *C. hausknechtii* in its smaller and brighter colored basidiocarps, larger spores, and absence of pileocystidia.

The spore surface as seen in SEM shows that *C. hausknechtii* indeed is a member of the series *Siennophylla*, characterized by smooth spores.

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